

The process sizing step 76 is illustrated in greater detail in FIG. 12. The process begins at 166, and a decision step 168 determines whether the stylus is moving while it is still on the screen. As will be appreciated by those skilled in the art, this is easily accomplished by analyzing the series of data points provided by the display assembly 20 whenever the stylus is in contact with the screen 38. If it is, the CPU 12 concludes that the user is making a sizing gesture to note N(i). Under these circumstances, step 170 calculates a vertical distance  $\Delta Y$  that is the difference between the current stylus location and the original location of the sizing button. The data record R(i) is then modified for note N(i) such that the height H(i) is set to  $H(i) + \Delta Y$  in a step 172. Next, in a step 174, all visible notes (or portions thereof) are drawn on the screen 38. Steps 168, 170, 172, and 174 are then repeated until the stylus is no longer moving while on the screen as determined in by step 168, at which time the process is completed as indicated at 176.

It should be noted that the sizing button 48 can be used to reduce the size of a note as well as increase the size of a note. However, care should be taken while decreasing the size of the note, since part or all of the text, graphical, or data objects for the note could be obscured from view if the height of the note is insufficient to accommodate them.

FIG. 13 illustrates a process 174 for re-drawing all visible notes on the screen 38 of the pen-based computer system 10. The step 174 is preferably implemented by graphics software such as QUICKDRAW from Apple Computer, Inc. of Cupertino, Calif. A description of the QUICKDRAW graphics software is found in the book *Inside Macintosh, Volumes I, II, and III*, by C. Rose et al., Addison-Wesley Publishing Company, Inc., July 1988. With such graphics software, a header bar, for example, can be drawn by simply specifying the coordinates of the beginning and the end of the bar, along with the thickness of the bar, its pattern, etc.

The process 174 begins at 178 and initializes variables in a step 180. Two of these variables include the counter i which is set to the current note number C, and the variable Y which is set to the negative of the offset O. Next, in step 182, the note N(i) is drawn from the point Y, i.e., from the current offset position. This step 182 includes the sub-steps of drawing the header bar B(i), the date D(i), the note number i, the text object TEXT(i), the graphic object GRAPHIC(i), the data object DATA(i), etc. This will result in an image of part or all of note N(i) being displayed on the screen 38. Next, in a step 184, the variable Y is increased by the height of note N(i) i.e.,  $Y = Y + H(i)$ . In a decision step 186, the value of Y is compared to L, the length of the screen 38. If Y is greater than L, then the process 174 is completed as is indicated at 188. Otherwise, the counter i is incremented by 1 in a step 190 and steps 182, 184 and 186 are repeated. Essentially, the decision step 186 determines whether part or all of the next note will fit on the screen, and if it will, the CPU 12 causes that partial or complete note to be drawn on the screen. Steps 182-190 are repeated until all visible notes are displayed on the screen 38.

In FIG. 14, the step 84 of processing the up-scroll is illustrated in greater detail. The process begins at 192, and a decision is made as to whether the current note number C and the current offset O are both equal to zero in a step 194. If they are, the header bar B(1) of note N(1) is at the top of the screen 38 and no further up-scrolling is possible as indicated at 196. Otherwise,

step 198 determines whether the offset is equal to zero, and if it is not then the value of the offset O is reduced by the length of the screen L in a step 199 so that another screen-full of images can be displayed. If the offset O is equal to zero, the current note number C is decremented by 1 in a step 200, and in a step 202 it is determined whether the height H(C) of note N(C) is less than L, the length of the screen 38. If it is less, the entire note N(C) will fit on the screen 38. If H(C) is not less than L, the entire note N(C) will not fit on the screen 38 and a new offset O is calculated as indicated in step 204. This new offset O is equal to:

$$O = H(C) - \{H(C) \text{ MOD } L\}$$

where  $\{H(C) \text{ MOD } L\}$  is the modulus of H(C) and L, i.e. it is equal to the remainder of the quotient  $H(C)/L$ . Finally, after steps 199 or 204 are completed or if the decision step 202 is true, all visible notes are drawn in step 174 before the completion of the process at 196.

The process down-scroll step 88 is illustrated in greater detail in FIG. 15. The process starts at 206, and the height H(C) of the current note C is compared with the length L of screen 38 in a step 208. If the height is less than the screen length, then the offset O is increased by the length of the screen L in a step 210. Next, in step 212, the offset is compared with the height H(C) of the current note and, if it is less than that height, all visible notes are drawn in a step 174 and the process is completed as indicated at 214. Otherwise, if step 212 determines that the offset O is greater than the height H(C) of the current note, the current note C is incremented by 1 and the offset O is set to zero in a step 216.

While this invention has been described in terms of several preferred embodiments, it is contemplated that alterations, modifications and permutations thereof will become apparent to those skilled in the art upon a reading of the specification and study of the drawings. Furthermore, certain terminology has been used for the purposes of descriptive clarity, and not to limit of the present invention. For example, while the creation of new notes has been described as the division of previous notes, it is also possible to characterize note creation as adding additional notes to one or more previous notes. It is therefore intended that the following appended claims include all such alterations, modifications and permutations as fall within the true spirit and scope of the present invention.

What is claimed is:

1. A method for manipulating notes on the screen of a computer display comprising:

generating an initial note area on a screen of a computer display;

dividing said initial note area into a plurality of note areas in response to at least one division gesture implemented by moving a pointing means across the width of the screen such that a left edge of the division gesture is within a first defined distance of a left side of said computer display and a right edge of the division gesture is within a second defined distance of a right side of said computer display, wherein the division gesture is made in a horizontal motion having a slope of less than a predefined slope value, and wherein each division gesture creates divider indicia in the form of a header bar on said screen which visually separates two adjacent note areas, said header bar being displayed on said computer display as a horizontal region having